Comments of The Aluminum Extruders Council
On
Department of Energy's (DOE)
Energy Star Program For Windows

March 27, 2003

I. INTRODUCTION

The Aluminum Extruders Council (AEC) is a trade association that represents the interests of those companies involved in aluminum extrusion and associated businesses. A number of our members are family-owned businesses. A complete list of AEC's members is contained in Attachment I. AEC has reviewed the February 11, 2003 proposed revisions to the Energy Star Windows program and we appreciate the opportunity to submit comments on this document. Based on the review and analysis we have performed, AEC continues to have significant problems with DOE's approach to the Windows portion of the Energy Star Program. Even though DOE recognizes some adjustment to the U-Factor for aluminum windows is appropriate, the proposal still fails to take into consideration several significant issues -- durability, storm resistance, environmental lifecycle -- that can affect the long-term energy and consumer cost savings intended for the Energy Star program. AEC and its members are greatly disappointed by the lack of analysis supporting the proposals, particularly in light of the information submitted by AEC and its members in June 2002. If DOE finalizes either of the proposals as they are now structured, consumers will not see the significant long-term benefits that they believe they will obtain from an Energy Star purchase, and 1600 products now on the market will disappear. This will eliminate approximately 50 aluminum window manufacturers.

In the comments below, AEC will suggest four alternative approaches DOE should adopt, any one of which will meet the energy savings and consumer cost goals of the Energy Star program. Each of these approaches will provide energy and consumer cost savings that are equivalent or virtually equivalent to the savings estimated in the DOE proposals. Each will also keep a reasonable competitive balance among different window materials. If DOE should proceed with either of the proposals put forward on February 11, 2003, DOE will be arbitrarily

harming aluminum extruders and aluminum window manufacturers and limiting consumer choice for little or no benefit.

II. DOE'S ANALYSIS MUST FULLY CONSIDER LONG-TERM DURABILITY, STORM PROTECTION AND ENVIRONMENTAL LIFE CYCLE BENEFITS OF ALUMINUM WINDOWS

DOE's analysis document in support of the February 11, 2003 proposals does not adequately consider several features of aluminum windows that will affect both the long-term energy/cost savings for consumers and other real-world advantages that would be lost if either of the two proposals were to be put into place. While DOE's analysis paper notes that "[t]he impacts of program requirements on participants in the window market should therefore be well understood and included as part of the final decision making process ...," the analysis document does not address certain issues at all, or gives only a brief reference to key issues.

As AEC's June 2002 comments make clear, long-term durability of aluminum versus other window products will be a key element in any real energy savings for this program. Simply put, if the frame deforms over time, air leakage will overwhelm any initial savings at the time of purchase. Since DOE uses a 40-year analysis, it must have a solid basis to demonstrate that the energy savings can be achieved by a product over that time. As the June 2002 AEC comments and attachments point out, there is a significant question as to the long-term performance among materials. This difference simply cannot be disregarded in a long-term analysis. A copy of AEC's comments and the long-term durability comparison are attached to these comments. (Attachment I)

The DOE analysis paper appears to recognize, but then pays little attention to, the storm resistance characteristics of aluminum frames, particularly in areas that are subject to hurricanes, tropical storms and similar events. The paper states that local building codes will dominate sales

decisions. The problem with that reasoning is that customers may purchase windows with an Energy Star label which have inferior storm resistance in the mistaken belief that the Energy Star label would not be allowed on a product that fails to provide the storm resistance required by local building codes. This confusion to the consumer is most likely in the replacement market where compliance with local building codes may not be as rigorously enforced (or even required) as would be the case for new construction. The problem identified with storm resistance exists in states such as Georgia, South Carolina, North Carolina, Texas, Louisiana, Mississippi and Alabama (all of which have areas outside the "Southern Zone" under either proposal) and could lead to danger to consumers at best and injury to property or persons at worst. Given this situation, AEC believes DOE must provide a mechanism to allow aluminum frame windows to obtain Energy Star status in these areas. The suggested approaches outlined below will provide options that will allow this to occur.

The June 2002 AEC comments also address life cycle/recycling/disposal issues which are not addressed in the DOE analysis paper. The only discussion of environmental issues is based on reductions in emissions from power plants due to energy savings. It is difficult to understand why the differences between materials resulting from end-of-use and product resistance to fire are relevant factors in other nations, but appear to be disregarded by DOE.

AEC respectfully requests that DOE fully consider these factors as any final decision regarding the Energy Star program is made. Failure to do so would lead to a program which would fail to provide consumers with the full range of information that can lead to informed decisions. Clearly, DOE should not create a situation where the Energy Star label could lead to negative impacts for consumers.

III. ALTERNALTIVE APPROACHES THAT WILL ACHIEVE DESIRED ENERGY SAVINGS AND WILL KEEP APPROPRIATE COMPETITIVE BALANCE

After analyzing DOE's proposal, AEC has developed several alternative approaches which will meet the same objectives as DOE's proposals, but will allow continued competition among window materials. AEC strongly recommends that DOE utilize any of these alternatives over the current proposals. Failure to do so will not only harm consumers, but will skew the competitive balance in window products in a way that will not achieve long-term energy savings. Adoption of approaches that shift the market in this way are not in conformity with the stated objectives of the Energy Star program and its underlying authority.

A. Suggested Criteria Modification for the Three-Zone Map

DOE's proposal for this option consists of the following:

Zone	U-Factor	SHGC
South	0.65	0.40
Central	0.40	0.40
North	0.35	any

AEC has used these levels and factored them in a consumer cost analysis using the RESFEN calculations for a typical 2000 square foot home with 300 square feet of window area for major cities in each zone. AEC then ran the same analysis for the same cities using slight variations in both U-Factor and SHGC. The following are the results of this analysis.

1. South Zone Energy Costs

City	Energy Star Proposal 0.65/0.40	AEC Proposal 0.65/0.35
Miami	$ 698.69	$ 639.58
Lake Charles	$ 545.25	$ 519.01
Jacksonville	$ 497.50	$ 469.48

2. Central Zone Energy Costs

City	Energy Star Proposal 0.40/0.40	AEC Proposal 0.45/0.35
Phoenix	$ 747.43	$ 732.76
Forth Worth	$ 533.65	$ 532.63
Fresno	$ 431.27	$ 434.00
Las Vegas	$ 593.49	$ 595.69
Memphis	$ 636.34	$ 637.89
Atlanta	$ 428.83	$ 433.04

3. North Zone Energy Costs

City	Energy Star Proposal 0.35/any SHGC (Use Energy Star Window with U = 0.35; SHGC = 0.25 for Comparison Purposes)[1]	AEC Proposal 0.42/0.50
Madison, WI	$ 791.17	$ 790.32
Seattle	$ 469.69	$ 446.83
Boston	$ 674.78	$ 665.38
Buffalo	$ 754.78	$ 760.17
Burlington	$ 818.57	$ 808.24

As these analyses demonstrate, the use of varying SHGC and U-Factors will provide benefits to the consumer that are either better than or within 1-2% of DOE's proposal (in a given zone). Nationwide, the benefits of the AEC proposal are comparable to or better than DOE's proposal. AEC members believe they can obtain and use glass that meets the SHGC levels suggested by AEC at a reasonable cost and that this material can be used in aluminum frames that meet the proposed U-Factor levels. As noted above, the use of aluminum frames provides long-term durability, storm resistance and life cycle environmental benefits that merit the

[1] DOE's Evaluation of Alternative Qualifying Criteria for Energy Star Windows March 8, 2002, shows that over 1800 products are available with these design criteria and would obtain an Energy Star label in any zone. (See p. 11 of DOE's March 8, 2002 document.)

continued use of this material. Therefore, AEC recommends that DOE adjust the levels in the 3-zone map accordingly.

B. Suggested Criteria Modification for the Four Zone Map

DOE's proposal for this option consists of the following:

Zone	U-Factor	SHGC
South	0.65	0.40
South/Central	0.40	0.40
North/Central	0.40	0.55
North	0.35	Any

AEC has performed an analysis identical to that used in the three-zone discussion -- i.e., RESFEN analysis for 2000 square foot home with 300 square foot window area. The following are the results using DOE's levels and AEC recommended alternative levels.

South Energy Costs

City	Energy Star Proposal 0.65/0.40	AEC Proposal 0.65/0.35

(Same as 3-zone option for some cities)

South/Central Energy Costs

City	Energy Star Proposal 0.40/0.40	AEC Proposal 0.45/0.35

(Same as Central Zone in 3-zone proposal)

North/Central Energy Costs

City	Energy Star Proposal 0.40/0.55	AEC Proposal 0.45/0.35
Albuquerque	$ 427.49	$ 450.33
Memphis	$ 665.23	$ 637.39
Kansas City	$ 708.11	$ 708.11
Washington, D.C.	$ 590.31	$ 606.15

North Energy Costs

City	Energy Star Proposal 0.35/any SHGC (Use Energy Star Window with U = 0.35; SHGC = 0.25 for Comparison Purposes)[2]	AEC Proposal 0.42/0.50
	(Same as Three-Zone Map)	

Like the analyses for the three-zone proposal, these analyses demonstrate that the AEC proposed levels will provide benefits that are better than or within a small percentage of those that would be obtained from DOE's proposed levels. As noted above, AEC members believe they can obtain and use glass products at a reasonable cost and there are significant long-term durability, strength and life cycle benefits from continued use of aluminum.

C. Provide Ability of Window Manufacturers to Demonstrate Equivalent Energy/Cost Savings as DOE Proposed Levels.

The analyses performed for both the three and four-zone map proposals demonstrate that equivalent, near equivalent, or better energy and cost savings benefits can be achieved by the use of a slightly different mix of U-Factors and SHGCs. As a result of the rigid design-based nature of DOE's proposals, a window product could achieve superior overall energy efficient and cost

[2] Id.

savings and not be eligible for Energy Star rating. This is an arbitrary result which will have a substantial negative impact on aluminum window manufacturers and aluminum extruders. As noted above, AEC's review of existing NFRC data show that DOE's proposals would make 1600 existing products not eligible and could force 50 aluminum window companies out of the business of making these products.

Given this level of adverse impact, and the rigid nature of the program design, AEC suggests that DOE adopt a more flexible approach to this program which is based on the performance of a given product. Under this approach, a window manufacturer would be able to present information to DOE (using a widely available and accepted analytical tool such as RESFEN) which shows that the product achieves energy/cost savings that are equal to the levels selected by DOE for any zone.

It is critically important to note that the Energy Star program already relies overwhelmingly on performance-based standards for other products -- and with good reason. Performance-based standards are much more likely to deliver the projected energy savings associated with specific consumer choices. Our research shows that of the current 36 products listed on the Energy Star website, 32 utilize performance-based standards. Only four (insulation/air sealing; programmable thermostats; roof products; and windows, doors, and skylights) use design-based standards. Attachment II contains a list of the Energy Star products with performance-based standards.

This performance-based approach has long precedent in environmental safety and energy conservation regulatory programs. For example, in the motor vehicle industry, Congress, EPA and DOT (NHTSA) have established standards for emission control (both tailpipe and evaporative), safety and fuel economy that are based on achievement of a given performance

level. Manufacturers are left to devise the most efficient way of achieving the specified level. For this reason, performance-based standards deliver results (whether energy savings, environmental, or other) at the lowest cost. Examples of these programs are found in Title 40 of the Code of Federal Regulations at Part 85, 86, 600 for EPA emission standards and rules, and Title 49 of the Code of Federal Regulations at Parts 531, 533, 571 and 581 for NHTSA fuel economy, safety and bumper rules. EPA has adopted performance-based emission standards for engines used in consumer products such as lawnmowers, lawn and garden products, portable generators, etc. See Title 40 Code of Federal Regulations Part 90.

Likewise, aluminum extruders are subject to regulations recently promulgated or proposed by EPA which establish emission standards for secondary aluminum production and the surface coating operations for metal parts and products. In both of these cases EPA has established limits which do not dictate a particular design but rather allow facilities to achieve the levels in the most efficient method possible. See 40 C.F.R. § 63.1500-1595 (secondary aluminum), and 67 Fed. Reg. 52779 (Aug. 13, 2002) (Miscellaneous Metal Parts and Products).

AEC can see no compelling reason why DOE should retain its rigid design-based proposals and adopt a performance-based approach for window products. Nothing in the analytical documents made available to the public compels the rigid approach contained in DOE's proposals. The fact that the existing program is structured this way is not a valid justification, since products with equivalent or superior performance would be harmed for no benefit to the public or the goals of the Energy Star program.

Adoption of a flexible performance-based approach would achieve DOE's goals, provide consumers with energy and cost savings, and provide the benefit of choice of frame material. Moreover, a performance-based approach is consistent with the vast majority of other Energy

Star standards. This common-sense approach can be easily administered using existing analytical tools. AEC will be happy to work with DOE personnel on the details of such a program.

D. If DOE Fails to Adopt Any of the Approaches Outlined Above, DOE should Adopt a Separate Rating System for Aluminum Windows to Account for Long-Term Durability and Other Factors.

AEC members are aware that Great Britain and Germany have recently adopted an approach to energy conservation for windows that recognizes the long-term durability and life cycle environmental benefits of aluminum frame windows. Attached are relevant excerpts of Document L in the United Kingdom and Document J in Scotland. As these documents demonstrate, different standards are established which are based on the long-term durability benefits of aluminum.

These countries have it right. They clearly understand that energy conservation for windows is not simply a function of initial ratings, but long-term durability and life cycle. As AEC has noted in its June 2002 comments and attachment, available data and ongoing tests show the superior long-term performance of aluminum over enhanced vinyl products. Currently, the NFRC is conducting long-term durability testing as part of the Long-Term Energy Performance Subcommittee. We expect that testing will confirm our prior testing regarding durability over time. DOE must take this fundamental factor into account in any further Energy Star program for windows. The failure to do so will lead to fewer benefits than projected and a loss of credibility with consumers on other parts of this program.

While AEC believes the long-term durability issue provides justification for the three options outlined above, we would be happy to discuss how DOE should adjust its levels for aluminum frames if DOE should decide to develop a separate rating system for different materials.

IV. ADOPTION OF THE ALTERNATIVES RECOMMENDED BY AEC IS CONSISTENT WITH CONGRESSIONAL INTENT

Section 121(a)(2)(A) of the Energy Policy Act of 1992 states that the program for Windows "shall include specifications for testing procedures and labels that will enable window buyers to make more informed purchasing decisions about the energy efficiency of windows and window systems ... and information ... that will allow window buyers to assess the energy consumption and potential cost savings of alternative window products." (Emphasis added) DOE's current proposals fail to meet this mandate since, by not accounting for the long-term durability of aluminum frames and by not allowing products that provide equivalent or greater total energy savings to obtain Energy Star labels, consumers will not be able to make informed decisions. Moreover, this provision specifically contemplates test procedures for these products, not design specifications. DOE must structure the revised program in a way that is consistent with this Congressional mandate. Adoption of any of the alternatives presented by AEC in these comments will fulfill the intent of Congress.

For the reasons set forth above, DOE should adjust its February 11, 2003 proposal in accordance with one of the four options presented in Section III of these comments. AEC and its members stand ready to work with DOE personnel on the details of any or all of the suggested revisions.

Attachments:

Attachment I - AEC Member List
Attachment II - AEC June 2002 Comments and Attachments
Attachment III - List of other Energy Star Products and Specifications
Attachment IV - U.K. Document L